

JUN 26 2007

Application No.: 10/529,130

Docket No.: JCLA12006

AMENDMENT

In the Claims:

Please amend the claims as follows:

Claims 1-3 (canceled)

4. (currently amended) A fuel filling apparatus, for filling a hydrogen gas into a fuel tank of an automobile that uses the hydrogen gas as a fuel, the fuel filling apparatus comprising a heat exchanger using a liquid inert gas as a refrigerant for cooling the hydrogen gas, wherein the liquid inert gas not mix with the hydrogen gas.

5. (currently amended) A fuel filling apparatus, for filling a hydrogen gas into a fuel tank of an automobile that uses the hydrogen gas as a fuel, the fuel filling apparatus comprising:

a heat exchanger, using a liquid inert gas as a refrigerant to cool the hydrogen gas, wherein the heat exchanger performs a heat exchange with the hydrogen gas to gasify the liquid inert gas to obtain an inert gas, and the obtained inert gas is discharged into the fuel filling apparatus, and the liquid inert gas not mix with the hydrogen gas.

6. (original) The fuel filling apparatus of claim 5, wherein the heat exchanger further comprises a first heat exchange unit for cooling the hydrogen gas by an intermediate medium, and a second heat exchange unit for cooling the intermediate medium by the liquid inert gas.

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7. (currently amended) A fuel filling apparatus, for filling a hydrogen gas into a fuel tank of an automobile that uses the hydrogen gas as a fuel, the fuel filling apparatus comprising:

a flow modulating valve, for modulating a supply amount of a hydrogen gas; and

a cooling means using a liquid inert gas as a refrigerant, for cooling the hydrogen gas passing through the flow modulating valve, wherein the liquid inert gas not mix with the hydrogen gas.

8. (previously presented) The fuel filling apparatus of claim 7, further comprising a control means for controlling the supply amount of the hydrogen gas, and the control means further comprising a memory unit for storing a temperature history data base; and a control unit for controlling the supply amount of the hydrogen gas by modulating an aperture of the flow modulating valve according to data stored in the temperature history data base, and

wherein the temperature history data base comprises data showing a relationship among a temperature in the fuel tank before filling, a temperature of the hydrogen gas fill to the fuel tank, the aperture of the flow modulating valve, and a temperature in the fuel tank when filling the hydrogen gas.

9. (currently amended) A fuel filling method, for filling a hydrogen gas into a fuel tank of an automobile that uses the hydrogen gas as a fuel by using an fuel filling apparatus, wherein the fuel filling apparatus comprises a flow modulating valve for modulating a supply amount of the hydrogen gas and a cooling means using a liquid inert gas as a refrigerant for cooling the

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hydrogen gas, wherein the liquid inert gas not mix with the hydrogen gas, and the fuel filling method comprising:

cooling the hydrogen gas passing through the flow modulating valve by using the cooling means; and

filling the cooled hydrogen gas into the fuel tank.

10. (previously presented) The fuel filling method of claim 9, wherein fuel filling apparatus further comprises a control means for controlling the supply amount of the hydrogen gas, and the control means further comprises a memory unit for storing a temperature history data base; and a control unit for controlling the supply amount of the hydrogen gas by modulating an aperture of the flow modulating valve according to data stored in the temperature history data base, and

wherein the temperature history data base comprises data showing a relationship among a temperature in the fuel tank before filling, a temperature of the hydrogen gas fill to the fuel tank, the aperture of the flow modulating valve, and a temperature in the fuel tank when filling the hydrogen gas.